Boiling eXperiment Facility – Nucleate Pool Boiling eXperiment (BXF-NPBX)

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RESEARCH SUMMARY

- BXF-NPBX is one of a two investigations to be operated in the Boiling eXperiment Facility (BXF). The other investigation scheduled for operation in BXF is the Boiling eXperiment Facility - Microheater Array Boiling Experiment (BXF-MABE).
- To understand bubble growth, detachment and subsequent motion of single and large merged bubbles, boiling experiments will be conducted in microgravity on ISS. In these experiments, designed surfaces will be used, visual observations and heat transfer data will be taken.

RESEARCH OPERATIONS

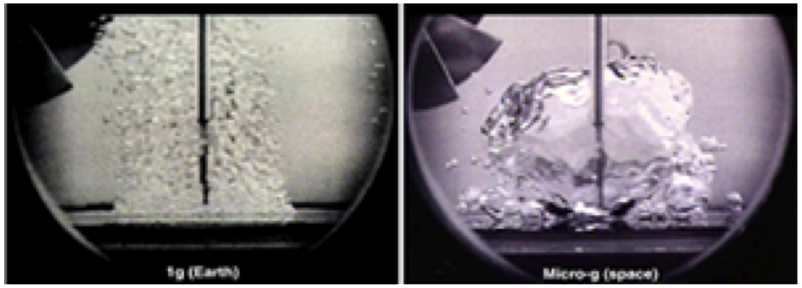
- The crew will activate the experiment after setup inside the Microgravity Science Glovebox (MSG).
- Videotape and hard drive changes by the crew will be required.

PREVIOUS MISSIONS

- BXF-NPBX is a unique investigation, nothing like this has flown in space before.

WEBSITE

- For more information on BXF-NPBX: http://exploration.nasa.gov/programs/station/list.html



In Earth's gravity (image on the left) the action of buoyancy allows the bubbles to overcome surface tension forces. The bubbles rise upward away from the heater surface. In microgravity (image on the right) the buoyancy force is very weak. Consequently, the bubbles often remain attached to the heater because of surface tension and become large as more vapor is produced due to the continuous input of energy from the heater.